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ABSTRACT

Intended for administrators and teachers of gifted children, the volume presents ideas on creativity developed by the participants in the 1975 Teacher Training Institute at Governor's School in North Carolina. Sections cover the rationale of creativity in the classroom, theoretical background, the creative classroom (including a game for teachers to assess their creativity and a student survey), and ideas for creative activities (a list of 127 ideas). Provided is a bibliography of 37 resources focusing on creativity. Appended are a model for implementing cognitive-affective behaviors in the classroom and a model of the mind. (IM)

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TEACHER TRAINING INSTITUTE PRESENTS

TEACHING AND LEARNING CREATIVELY

Compiled and Edited by

Elizabeth Broome

and

Governor's School Teacher Training Institute

A. Craig Phillips
State Superintendent

Theodore R. Drain, Director
Division for Exceptional Children

Division for Exceptional Children
Department of Public Instruction
Raleigh, North Carolina

1976

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The cover was designed by Adelaide Monds.

FOREWORD

Educators are much aware of the need to nourish the thinking and the creativity of students. Especially are teachers of the gifted students searching to find better ways to motivate their students and to stimulate their thought processes. One way that the SDPI assists teachers is through inservice opportunities such as the Teacher Training Institute at the Governor's School which emphasizes up-to-date content, theories of learning, and techniques for applying the theories. This publication contains ideas developed by the participants in the 1975 Teacher Training Institute and is being shared with administrators and teachers that it might be helpful to them.

A. Craig Phillips
State Superintendent of Public Instruction

PREFACE

The Teacher Training Institute at the Governor's School has been an important part of inservice for teachers of the gifted and talented students for the past six years. The participants have opportunity to work with consultants who are expert in their fields, to study application of learning theories, and to work with Governor's School students and faculty. For the past three years, the teachers have developed activities and ideas to share with teachers across North Carolina.

This third annual publication is designed for use by the classroom teacher with the hope that these ideas will be a beginning to stimulate the teacher's creativity and to open doors for students' creative thinking abilities.

Theodore R. Drain

Theodore R. Drain, Director
Division for Exceptional Children

INTRODUCTION

The 1975 Teacher Training Institute at the Governor's School was a four-week experience of learning, demonstrating techniques, developing activities and lesson ideas, personal growth, and fun. It is always exciting to be involved with other teachers of gifted students, with the Governor's School students, and with knowledgeable consultants.

The Teacher Training Institute has been held annually since 1970 when it was funded by the Smith Reynolds Foundation. For three years the SDPI has funded the program which has the enthusiastic support of Dr. Craig Phillips, Superintendent of Public Instruction, and Dr. Jerome H. Melton, Deputy Superintendent of Public Instruction. Applicants to the Institute are nominated by local superintendents, and approximately twenty teachers are selected each year to attend.

The sixth annual institute for teachers of gifted students consisted of eighteen teachers from across North Carolina, representing primary grades through high school level and a variety of subject matter areas. These teachers became especially interested in creativity, not only ways to teach creativity to children but also ways to teach creatively. From their enthusiasm and inspiration came ideas that they wanted to share with other teachers that they too might catch the spirit of creative teaching. This publication is the result--to be used as a beginning, a spark to ignite imaginations.

Acknowledgements: I want to express my appreciation to Mr. Theodore R. Drain, Director, Division for Exceptional Children, and to Mr. George Kahdy, Assistant State Superintendent for Program Services, for their support and guidance in my work with the Teacher Training Institute. Without the support and guidance of the following people, this publication would not be possible: Miss Cornelia Tongue, Coordinator, Gifted and Talented Section; Miss Henri Fisher and Mr. Henry Johnson, Consultants, Gifted and Talented Section; Mrs. Jane Ferrell and Miss Becky Lucy for the typing and many other secretarial details; Miss Mable Hardison who offered technical assistance; and teachers of the 1975 Teacher Training Institute, a special thanks.

The following consultants offered much information and inspiration and therefore I wish to express appreciation for their contributions: Dan Beshara, College Entrance Examination Board; Helen Gustafson, Scotland County Schools; Dr. Dorothy Sisk, University of South Florida; Dr. Joe Steele, Mars Hill College; Dr. Le Zollinger, Henderson County Schools; Dr. Dorothy Zuerscher, Cleveland State University; The Governor's School faculty and director; and Dr. Lee Grier and Mr. Odell Watson from the State Department of Public Instruction.

Elizabeth Broome

GOVERNOR'S SCHOOL TEACHER TRAINING INSTITUTE

Summer, 1975

Libby Broome
Regional Coordinator, Central Region
Division for Exceptional Children

Archbell, Susan
P. W. Moore Junior High School
Elizabeth City/Pasquotank Schools

Brookbank, Gayle
T. Wingate Andrews School
High Point City Schools

Cody, Colleen
Canton Junior High School
Haywood County Schools

Covalinski, Dick
Chesterfield School
Burke County Schools

Curtis, Maggie
J. W. Ligon Junior High School
Raleigh City Schools

Dellinger, Dixie
Burns High School
Cleveland County Schools

Dixon, Sybil
Burns High School
Cleveland County Schools

Garrabrant, Joan
Lexington Senior High School
Lexington City Schools

Haywood, Eva
Troy Junior High School
Montgomery County Schools

Lee, Sandi
High Point Central School
High Point City Schools

Leland, Peggy
Franklin School
Macon County Schools

Masters, Nancy
Newport Elementary School
Carteret County Schools

Monds, Adelaide
Harnett Elementary School
Harnett County Schools

Peer, Lynne
Northwest Junior High School
Guilford County Schools

Shell, Lynda
Southport Middle School
Brunswick County Schools

Tate, Kay
East McDowell Junior High School
McDowell County Schools

Tidwell, Trudy
Vance Senior High School
Vance County Schools

Watkins, Harriet
Northwest Elementary School
Kinston City Schools

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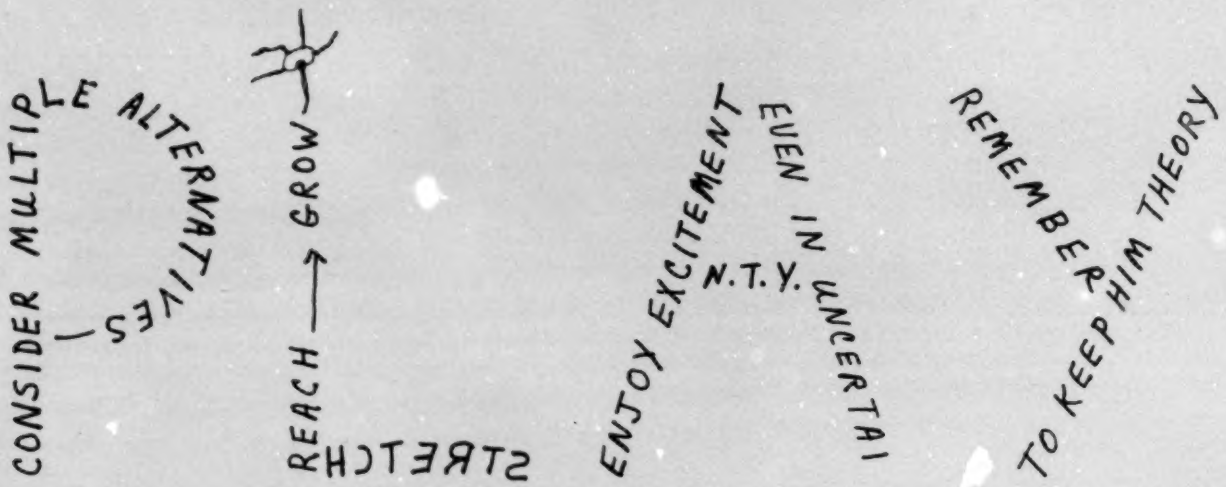
SECTION I: Rationale

Creativity: why? Because we can no longer afford not to. We have wallowed in the morass of traditionalism and watched the snake swallow his own tail while remarking that C=2 r. So what, Teach? Does that make me well-rounded? Then what do I do about my corners? How do I fill them up or bevel them off or decide which is the more appropriate approach to problem solving? Why can't I keep them just because I want to, and why can't I be comfortable about having them? Can/Should I try to teach the ones with the corners and/or the ones without? Can/Should I do both?

Because the state of creativity is a state of flux, variously defined and variantly manifested, we have waited for the research to be done or the model to be invented so that we would know how to proceed. Human fear trembles: how do we begin? We lie, cheat, and steal. We lie awake wondering if we really understand Bloom and Guilford and Gallagher and Gowan and Thurston and Getzels and, and, and . . . We cheat on the image of teacher-disseminator and start asking less of books but more of people. We steal ideas from each other, from our students, from the media, from the backyard, from anywhere and everywhere and we store them in a bag of "gimmicks to do differently . . . maybe." Perhaps we steal courage, too, from the theory, from the gimmicks, or maybe from the conviction that what is before us is a great adventure, uncertain and trying, and perhaps unsuccessful, but honest in its attempt to provide something more than yesterday's answers for tomorrow's questions. And having taken up the gauntlet, we relax and . . .



SECTION II: Theoretical Background

Creativity: Locatives, Sources, Treatment

Creativity is a topic of major interest in gifted education today. This essay is an attempt to synthesize some theories of learning and models of the intellect and then to apply these to the challenge of teaching for creativity. The models referred to are included in the Appendix.

In his Structure-of-Intellect model, J. P. Guilford locates creativity ('divergent production') as one of the two forms of production following the earlier learning processes of cognition, memory, and evaluation.[1] The mind first receives stimuli from the outside environment (cognition), then stores it (memory), then mulls it over and analyzes it (evaluation) and finally produces, either convergently or divergently. Bloom, in the taxonomy of cognitive learning behaviors, locates creativity toward the top of the scale, on the levels of synthesis and evaluation.[2]

Frank Williams' Model of Teaching Production of Divergent Thinking expands this process through both the cognitive and affective domains, identifying fluency, flexibility, originality, and elaboration as cognitive creative behaviors and curiosity, risk-taking, and complexity as affective factors. To encourage these creative behaviors, Williams offers around twenty teaching strategies from which multiple activities and exercises may be generated.[3] (See Appendix A)

Another model, used at the Governor's School of North Carolina as the Model of the 'Mind,' locates creativity along lines of traverse from the surface (sensory or intuitive) level of the mind's activities downward into ever deeper levels of abstraction and back up to the surface again in the act of production.[4] Here the Governor's School model adds to the Guilford Structure-of-Intellect the dimensions of depth and direction. It adds also a psychological element with the labels of 'self' and 'not self.' The creative act involves a plunge into the inner mind or self on various levels. (See Appendix B)

Arthur Koestler defines the creative act as one of 'bisociation' (i.e. the "shaking together" of hitherto disparate or unassociated elements so that a new relationship appears).[5] This bisociative process may be viewed in two ways which relate to the other models. In the scientific world, the bisociative process is largely one of discovery, a strongly rational act in that it begins

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[1]Mary N. Meeker, The Structure of Intellect: Its Interpretation and Uses (Columbus, Ohio: Charles E. Merrill Publishing Company, 1969) p. 8.

[2]Benjamin S. Bloom, et al., Taxonomy of Educational Objectives, Handbook I: Cognitive Domain (New York: David McKay Company, 1956) p. 49 et. seq.

[3]James J. Gallagher, Teaching the Gifted Child (Rockleigh, New Jersey: Allyn and Bacon, 1975) p. 256.

[4]H. Michael Lewis, Open Windows Onto the Future (The Governor's School of North Carolina).

[5]Arthur Koestler, The Act of Creation (New York: Dell Publishing Company, 1964) p. 35 et. seq.

with a problem and requires analysis and also a psychological act in that the discovery usually occurs when the person is unaware that his mind is working on the problem. (See the many examples in Koestler's The Act of Creation and the film "Arthur Koestler on Creativity."[6])

Bisociative acts of discovery are largely impressionistic; that is, they result from input--a problem existing outside the person--and may occur on several levels in the Model of the 'Mind.' Essentially intellectual and likely to be produced by the intellectually gifted and academically talented person, these acts may be encouraged by classroom exercises devised on the Williams model and by instructional planning which uses the synthesis level of Bloom's taxonomy.

Yet, another form of creativity exists whose source is mainly psychological and non-rational--that of re-creation or pure aesthetics. These creative acts involve the traverse from E to E' in the Model of the 'Mind,' from the sensory surface into the deepest, most totally abstract level of the 'self' or 'undifferentiated (aesthetic) continuum.'[7] Largely expressionistic, they arise from the individual's subconscious and are almost totally output without necessarily showing evidence of original sensory stimuli. This re-creative form of divergent production comes from intellectually and creatively gifted persons who may not of necessity be also academically gifted.

Having distinguished between two forms of creative acts, bisociative and re-creation, and located their sources in the intellect and the psyche, the question ensues: how can the teacher work with these factors in relation to gifted and/or talented in our educational programs?

The taxonomy and the Guilford model with its corollary, the Williams model, lend themselves to definable exercises, giving the teacher ample helps for guiding the gifted student toward divergent productions of the bisociative or discovery type. This type of creativity relates to the intellection and imagination levels of the Model of the 'Mind' where one thinks in abstractions, with or without words.

However, the trip into the undifferentiated continuum or 'subconscious' mind is another matter for which specific exercises are unavailable and possibly undesirable. Here, with the artistically gifted student, who may or may not be academically talented but is very likely to be intellectually gifted, the teacher must be able to work in the affective domain and in the most abstract sense. The creatively gifted student who works toward productions which express the deep realm of the self needs from his teacher primarily an attitude and an environment rather than an exercise.

Cultivating an attitude and environment for creativity

On the teacher's part:

. study the Model of the 'Mind' and the Structure-of-Intellect Models

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[6](Time-Life Films)

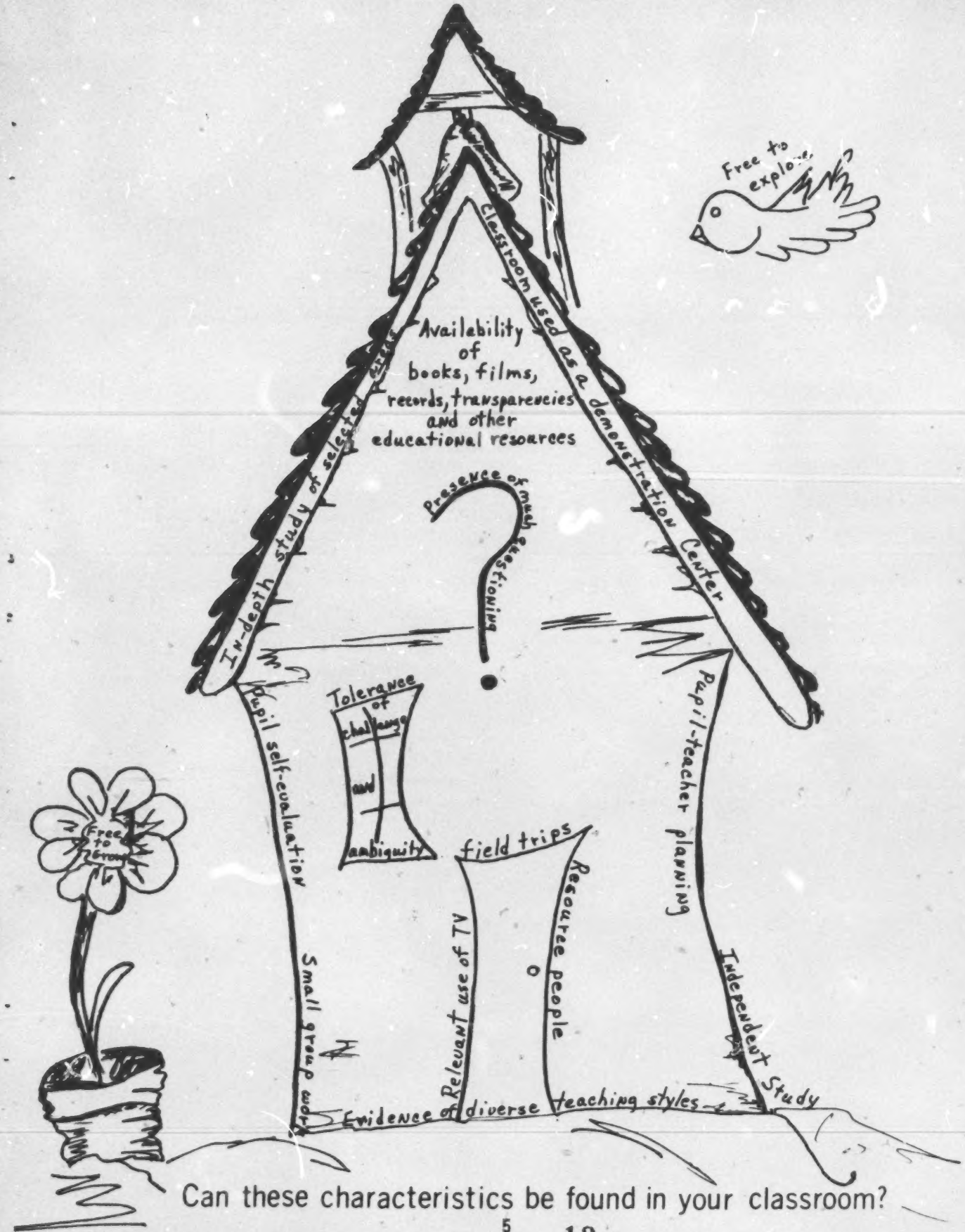
[7]F. S. C. Northrop, The Logic of the Sciences and Humanities (New York: World Publishing Company, 1947) p. 94-101.

- recognize the two forms of creative acts and how they differ in their sources.
- analyze one's personal values and if necessary alter them so that one prizes both acts and reflects this valuing in words and actions. Internalize!
- teach students about the mind and how it works; about convergent and divergent productions and the uses of both so that they may also learn to recognize and to value them.
- provide opportunities for students to see how creative acts occurred in the lives of great thinkers and artists and opportunities to experiment in their own medium.

On the student's part:

- learn about the mind and its processes.
- think about one's own values and abilities.
- try to conquer fears and inhibitions which hamper creative self-expression.
- learn to value the inner stirrings and fleeting visions which float up from the undifferentiated continuum and try to capture them in some production unique to the self.
- apply ALL these principles likewise to one's fellow man.

Dixie Dellinger



Can these characteristics be found in your classroom?

SECTION III: Classroom Atmosphere to Promote Creativity

What Is a Creative Classroom?

A creative classroom is nebulous and can hardly be pinpointed as to exactly what is creative and what is not. Nor is it strictly a concept that exists only from 8 a.m. to 3 p.m. on Monday through Friday. A creative classroom is an extension of the teacher himself and portrays his personality and lifestyle.

Just as there are ways to build for creativity, there are barriers that prevent its development. We present now some views of barriers and building blocks for creativity, for your enjoyment and enrichment.

. . . . .

The following "game" was designed by one of the teachers with the hope that it would be used as a self-analysis: are you a creative teacher? It should also be questioned, for you may not agree with the assigned values for the answers. Discussions about the answers and the analysis with the characteristics list should be fun and helpful.

UNWIND

UNWIND is a game of solitaire designed to help you look at yourself in relation to the characteristics formulated by Torrance to describe the creative teacher. The game could be expanded by adding more questions which would allow for the participation of more players.

Materials

1. a token (not included)
2. a game board (see following page)
3. cards (see following pages)

Directions

Place cards in a pile, question side up. Read the problem situation on the top card. Choose the response you would honestly make. Turn the card over and move your token the number of spaces indicated by your chosen response. Continue in this manner until the pack is exhausted.

Were you able to unwind?

Sample Card

Side A

1. Your principal asks for volunteers to develop and lead a new program.

   You

   a. assume an attitude of intense preoccupation
   b. request to be told more
   c. mutter to your colleague, "New program? What's the matter with the old ones?"
   d. wave your hand wildly to volunteer.

(see back of card for answers)

Side B

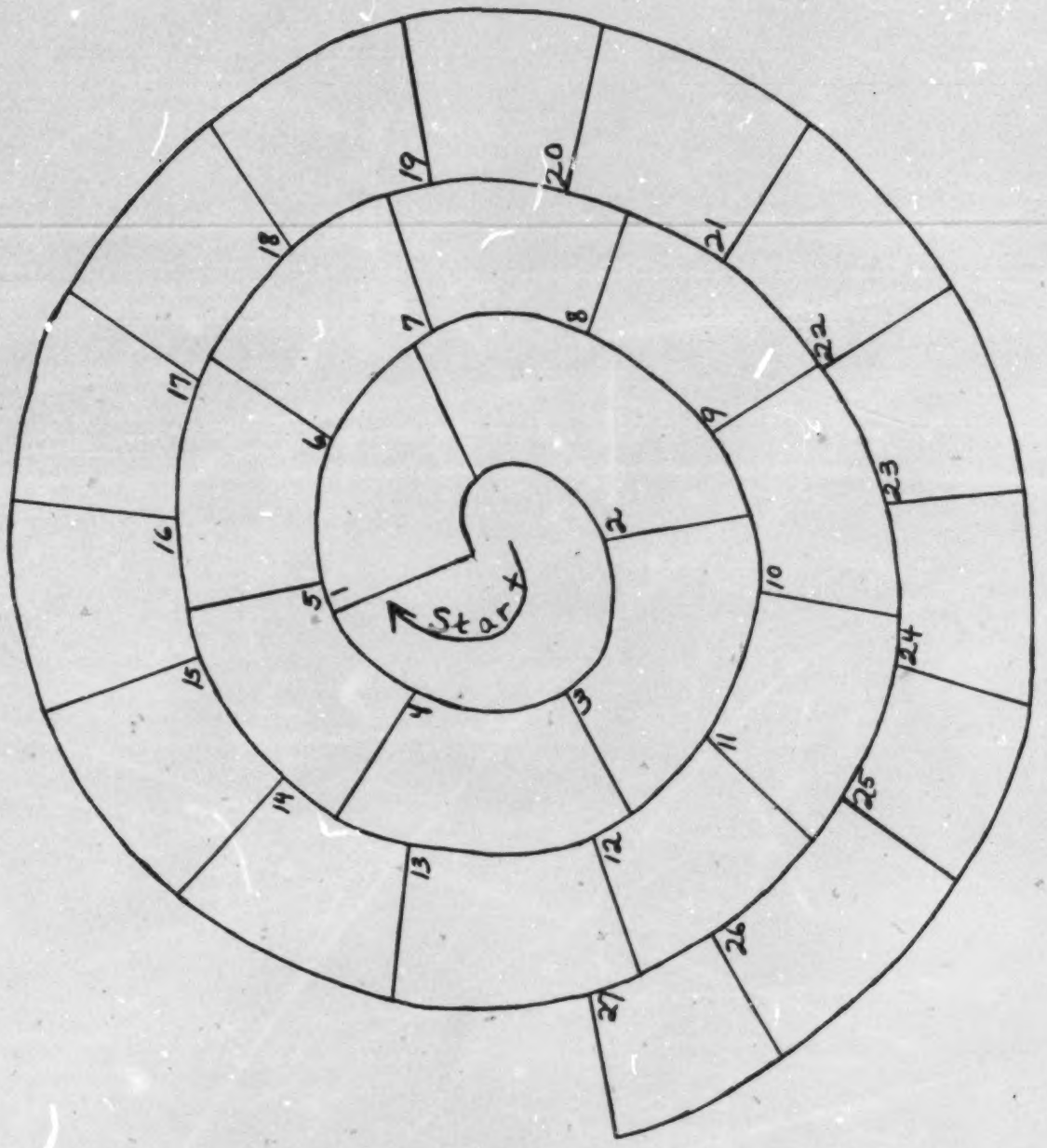
a. -1 - move back one space
b. +2 - move forward two spaces
c. -2 - move back two spaces

d. +1 - move forward one space

7

UNWIND

GAME BOARD



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Side A

2. After deciding that Johnny is unable to do the required work in your class, the guidance counselor recommends Johnny's removal. You have found Johnny's performance to be satisfactory.

   You
   a. accept the counselor's recommendation.
   b. suggest that the counselor see one.
   c. present your observations and try to change the counselor's mind.
   d. discover what Johnny's feelings are and act accordingly.

Side A

3. Another teacher tells you about a teaching strategy he has just discovered and intends to try.

   You
   a. ask him to let you know how it turns out after he uses it.
   b. immediately decide to try it yourself.
   c. mention that a teacher got fired in Varmint, West Virginia for using a similar approach.
   d. say it sounds like too much trouble to you.

Side A

4. You are attending a summer institute. The last week of the session you are told that your group has to put out a publication. You feel this is an unreasonable demand.

   You
   a. slap something together because the time is short.
   b. lift the best ideas from previous publications.
   c. attempt to do it, but insist on something different.
   d. refuse to do it.

Side A

5. You are hurrying to your car because it is starting to rain. You notice a strange object in the grass.

   You
   a. make a half-hearted kick at it as you go by.
   b. make a mental note to come back and look at it.
   c. ignore it.
   d. stop and investigate.

Side A

6. You are preparing some materials to use in class the next day. A friend with little creative talent drops by and offers to help.

   You
   a. snort.
   b. accept and use your friend's suggestions.
   c. thank your friend but tell her this is something you must do alone.
   d. accept your friend's offer utilizing the abilities she has.

Side B
2.

a. -2
b. 0
c. +1
d. +2

Side B
3.

a. +2
b. +1
c. 0
d. -2

Side B
4.

a. 0
b. -2
c. +2
d. +2

Side B
5.

a. 0
b. +1
c. -1
d. +2

Side B
6.

a. -2
b. -1
c. +2
d. +2

Side A

7. You saw something that looked remarkably like a flying saucer land beyond a clump of trees.

   You
   a. pretend you didn't see anything.
   b. run--FAST!
   c. call the police to investigate.
   d. try to get a closer look.

Side A

8. A lecturer is giving a two-hour talk on a subject that does not interest you but which you are required to attend.

   You
   a. make a dramatic exit.
   b. don't come back after the first break.
   c. fidget.
   d. think about the personality and origin of the speaker using his clothes, speech, manner etc., as clues.

Side A

9. You have been holding forth on a pet theory when you are asked a question which reveals a flaw in your reasoning.

   You
   a. talk fast thus creating a verbal haze.
   b. admit that your reasoning does seem to be faulty on that point and indicate that you will consider the point further.
   c. ignore the question and go on.
   d. insinuate that the question is irrelevant.

Side A

10. A student tells you that your observations on a poem make him want to throw up.

    You
    a. tell him he may be excused to go to the bathroom and do so.
    b. launch into a short talk on respect, courtesy, etc.
    c. send him to the office.
    d. laugh and ask for his observations.

Side A

11. You have one thousand, three hundred, and forty-seven tasks to complete before the next day. Your mate picks this moment to call you outside to view the sunset.

    You
    a. remark that it must be nice to have all that free time.
    b. say you're too busy.
    c. go and allow yourself to experience the sunset.
    d. let out a primal scream.

Side B
7.

a. -2
b. 0
c. +1
d. +2

Side B
8.

a. -2
b. +1
c. -2
d. +2

Side B
9.

a. -1
b. +3

c. 0
d. -2

Side B
10.

a. +1
b. -2
c. -2
d. +2

Side B
11.

a. -2
b. 0
c. +2
d. +1

Side A

12. You and your students have been required to attend a chapel program as a part of the school day. You believe strongly in the principle of separation of church and state.

    You
    a. go and report students who don't attend.
    b. go and refuse to report those students who don't attend.
    c. refuse to go and refuse to require student attendance.
    d. go under protest and submit a formal protest to the board of education.

Side A

13. The school year has finally ended and three glorious months of unscheduled time confront you.

    You
    a. sleep, eat, and watch T.V.
    b. decide to take courses in auto mechanics and acrylic painting from the local technical school.
    c. immerse yourself in the study of antiques.
    d. combine a program of daily tennis, jogging, and gardening.

Side A

14. A friend shows you a concrete poem which intriques her but which you find difficult to understand.

    You
    a. look at it briefly and put it out of your mind.
    b. say "Good grief, you call this poetry?!"
    c. examine it and ask your friend for an explanation.
    d. study it carefully for a few minutes, ask for a copy of the poem, and plan to reflect on it later.

Side A

15. One of your fellow teachers has attended an institute or workshop and is excited and anxious to share the new learnings with the staff. When asked to attend some afternoon sessions

    You
    a. give the teacher a big smile, but later remark to your friends how annoyed you are.
    b. say "How wonderful!" and then proceed to make a series of appointments with your dentist, gynecologist, hairdresser, stockbroker, tailor, sick friend.
    c. go and do your day's paper grading.
    d. go and later realize that you've incidentally learned something.

Analysis of Response

Included with the game is a list of characteristics formulated to describe the creative teacher. When you finish the game, see if you can determine which characteristics would govern each choice.

Joan Garrabrant

Side B
12.

a. -3
b. 0
c. +1
d. +2

Side B
13.

a. -2
b. +2

c. +2
d. +2

Side B
14.

a. -2
b. -2
c. -1
d. +2

Side B
15.

a. -2

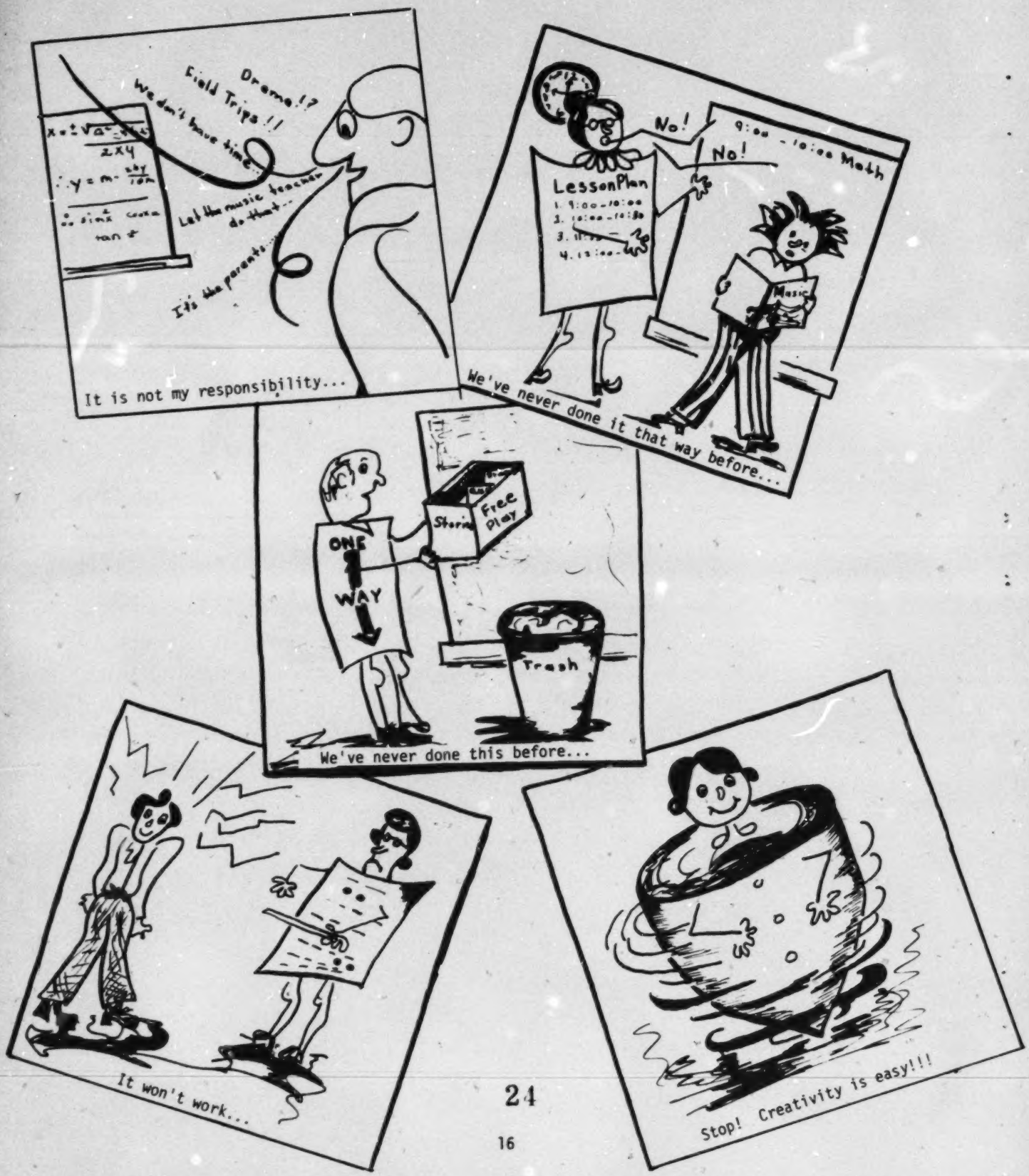
b. -2

c. -3
d. 0

CHARACTERISTICS FORMULATED TO DESCRIBE THE CREATIVE TEACHER

By E. Paul Torrance

1. Willing to take a risk
2. Unwilling to accept anything on mere say-so
3. Receptive to the ideas of others
4. Independent in judgment
5. Curious
6. Desire to excel
7. Attracted to the mysterious
8. Willing to attempt difficult jobs
9. Always baffled by something
10. Accepting of apparent disorder
11. Adventurous
12. Possessed by deep and conscientious convictions
13. Seldom bored
14. Not hostile nor negativistic
15. Persistent
16. Unconcerned about power
17. Sensitive to feelings of others
18. Self-starters
19. Energetic
20. Sensitive to beauty
21. Spirited in disagreement
22. Constructive in criticism
23. Possessive of a sense of humor
24. Openness to experience


Drama!?
Field Trips!!
We don't have time...
Let the music teacher do that...
It's the parents...
It is not my responsibility...
No!
No!
9:00 - 10:00 Math
LessonPlan
Music
We've never done it that way before...
Free Play
ONE WAY
Trash
We've never done this before...
It won't work...
Stop! Creativity is easy!!!

The following Student Survey may be used as it is or adapted to your needs. It is one way to have your students contribute their ideas about ways to have a creative atmosphere in the classroom and to suggest some topics for consideration. Many of the questions gather indirectly information that will assist your analysis of classroom atmosphere.

Student Survey

1. Rate the following learning situations as to which you feel you learn the most in doing. (1 - the best situation)

   ____ group work
   ____ individual research
   ____ homework
   ____ working with one partner
   ____ class discussions
   ____ teacher lecture
   ____ audio-visual aids

2. What thing might have happened in a class to make you feel it has been a really worthwhile day?

3. What things make you feel comfortable and open in a class?

4. If you are upset after leaving a class, what might have happened?

5. What things that teachers do bother you?

6. What things do other students do that bother you?

7. How do you feel about school?

8. What do you hope to gain from this class?

9. What would be the ideal arrangement of this room to facilitate a comfortable atmosphere?

10. What things can teachers do to encourage you to enjoy learning?

11. In what ways do you show boredom in class?

12. What movements and opinions of 20th Century would you suggest we incorporate into this class?

13. What one important idea can you say you learned last year (not necessarily content)?

14. What suggestions for interesting learning experiences do you have for this year?

15. How do your parents feel about your achievement in school?

16. Why is there public school?

17. Why are you in this class?

SECTION IV: Ideas for Creative Activities

Seeds for ...

Institute teachers have shared these seeds for thought--an inventory of ideas to stimulate student creativity. Varied approaches applicable to many subject areas permit the student to grow with ideas and to discover new relationships--to experiment with fluent, flexible and original thinking. Teachers may germinate these ideas at will--and in their own creative ways--or better yet, invent their own.

1. Students have been selected by NASA to go on an exploratory trip to a newly discovered planetary system. Something happens on the way (a rare disease or an accident that renders the adults in the party unconscious or dead). They have to set up a civilization on the planet with only the knowledge that they have in their heads. Who will be the doctors, the farmers, the city planners? How can they cope successfully with being entirely on their own?

2. Have each student write down his favorite song. Then he is to consider in what ways the idea of the lyrics could be changed to suit his personality and list the changes.

3. Given 17 matches arranged to form 6 squares below, take away four matches, leaving 3 squares and nothing more.

   Answer:

   From: J. P. Guilford, Intelligence, Creativity, and Their Educational Implications (San Diego, California: Robert R. Knapp, 1968), p. 23.

4. Each student reads a biography and writes 20 facts about the person. Different teams try to discover who the famous person is as the reader gives one fact at a time.

5. Connect two rhyming words in a phrase that projects an image. Draw a picture relating this rhyme. Example: a knight with a kite.

6. Engineer: Design a piece of playground equipment to meet the following criteria: (1) it must be safe and sturdy, (2) five children must be able to play on it without delays or over-crowding, (3) it must encourage creative play.

   Give the equipment a name. Tell its purpose for invention. Tell what muscles it strengthens; any other special facts about it; material it is made from; cost; how to play on it.

7. The class divides into small groups, each of which lists and discusses objects in a lady's purse. Entire class selects a provocative list and assigns attributes to the lady who owns the purse. Follow-up activities may include creative characterization, group analysis of stereotyped judgments, research on women's clothing (when/why did women begin to carry purses?), or anything the teacher is not afraid to tolerate.

8. Have students rewrite sentences or paragraphs, creating as many arrangements of words as possible.

9. Place a literary character such as Odysseus on trial for his crimes, using today's laws.

10. Conduct a "This Is Your Life" program for a famous person.

11. Cut out letters to Ann Landers and have students write answers.

12. Draw a picture of something you have never seen. What will you call it? Why?

13. Write a description of the world from the point of view of an inanimate object or an animal.

14. Mime a bus trip, with each student being a different character type. Maintain character throughout the trip.

15. Students discuss in small groups the purpose of background music in television programs and movies. Then they act out a brief scene, having chosen an unrelated piece of music to play with the acting.

16. What is the most important event in history? Why?

17. Using a fairy tale, retell the story from the evil or mean character's point of view. Example: the wolf in "Little Red Riding Hood."

18. Character Switch: Replace the personality of one character in literature with the personality of another. Speculate on the changes in plot, tone, etc.

19. Plan a design for a home, giving measurements and building costs.

20. If someone gave you three wishes and told you one must be for you, one for someone else, and one for all people, what would you wish for each?

21. What emotional effects do the colors gray, green, yellow, red, blue, etc. have on you?

22. As a reaction to a poem, story, or other work, construct a collage.

23. Have each student pantomime a cause/effect situation based on personal experiences.

24. Teacher should collect a number of sound makers. Then have students create a musical composition with varied pitch, tempo and tonal qualities.

25. What is the most important scientific discovery? Why?

26. Choose a cartoon character and write (from him/her) a letter to the editor discussing a topic which would concern that character.

27. Plan a community of the future. Explain what you would include in it. Make a scale model of it.

28. Find the average student (boy or girl) in the class. Average height, weight, shoe size, etc. Construct a bulletin board with the "average" boy and girl.

29. Write sentences with the word "run" to show different connotations of the word.

30. Make a list of all things that would be useful if they were made stronger or if they were made to last longer.

31. Given objects, such as paper clips, toothpicks, and rubberbands, create an object and explain it to the class.

32. Find a piece of music which would be appropriate to illustrate the theme of a certain story.

33. Plan a space lab for an Apollo mission.

34. Play a record of instrumental music. Ask students to list adjectives describing how they feel while listening to the music.

35. Build a mood of suspense by describing a natural setting in which some catastrophe is about to occur. Present to class, using illustrative sketches, pictures and appropriate background music. Can the class predict and describe the catastrophe? Immediate effects? Long range effects?

36. Have class develop a list of rules for consumers--what to look for and what to avoid in products and advertising.

37. If six cats eat six rats in six minutes, how many cats will it take to eat a hundred rats in a hundred minutes at the same rate?

    Answer: Since these cats together eat one rat every minute, only these six cats will be needed to eat one hundred rats in one hundred minutes.

    From: Abraham B. Hurwitz, et al., Number Games to Improve Your Child's Arithmetic (New York: Funk and Wagnalls, 1975), p. 199.

38. Write a diary for a famous person.

39. Draw an original traffic symbol which would be effective in controlling a traffic problem in the school.

40. If you had invented breakfast, how would you have made it different?

41. Choose a piece of art and a piece of music from the same period (Baroque, Classical, Romantic, Impressionistic, Contemporary). Then let the class brainstorm on the relationship between the two.

42. Ask students to relate an original story from three different points of view, role playing each part.

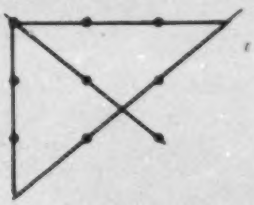
43. Plan a new life cycle.

44. Consider the broad and complex meanings of words like God, man, fate, soul, death, etc. Select one on which you would like to concentrate. Pose a philosophical question based on the word (e.g., what is the relation of God to man? What is the role of fate as opposed to free will in our lives?). Find how this question is dealt with in at least one example from each of three areas of the humanities. Express your own response to the question in a creative way, such as interpretive dance, art, dramatization, etc.

45. Plan a career. Check a newspaper for jobs, apartments, cars, etc. Then plan your budget.

46. Given nine dots, join them by four continuous straight lines. Do not raise pencil.

Answer:



From: Karen R. Krupar, Communication Games (New York: The Free Press, 1973), p. 105.

47. Students draw two new symbols for road signs which they feel will aid drivers in perceiving road conditions.

48. Have students present book review through a collage. Write a dialogue which reveals main characters.

49. Your stomach has been complaining recently and wants to give you some suggestions about what to eat. What would it say?

50. Go outside and list everything you see--list every sound you hear.

51. Set up four "sensory" centers (e.g., abstract transparency: art slide of street scene; photographs depicting human relationships; recording of music varied in moods; collection of objects with various shapes, sizes, textures; and collection of several fragrances). For each the student will record objective sensory details and then write subjective descriptions based on feelings, ideas evoked by the experiences.

52. Have students create a newspaper dealing with everyday events during the life of a specific famous person. (Include the arts, fashions, sports, obituaries, etc.)

67. Have students do creative writing beginning with "chocolate tastes like..."

68. Imagine what life would be like if all the clocks stopped running. What changes would society have to make to adapt to not having time as a limitation?

    (Suggestion: Read "Never Come Monday.")

69. Develop a new language and then teach the rest of the class the language.

70. Building awareness of the senses:

    What color is the wind?
    What does hair feel like?
    Describe the texture of skin.
    Describe the odor of freshly cut grass.
    Describe the sensations of placing an ice cube against lips.
    Describe the odor in the air after a rainfall.
    Describe the odor in the air before a rainfall.
    Describe the flight of a seagull.
    Describe the sensation as your hand glides across silk fabric.

71. Write a list of nonsense words on the board (such as granny-flaxes, goobers, speeks). Have students draw the mental images they have of the word.

72. Bring in a musical instrument and place in everyone's view. Have students verbalize on the character of that instrument.

73. Have several students dramatize a highly improbable event which is to "set off" a series of chain reactions. The class is to brainstorm possible consequences.

74. Each student creates for the class an interest corner in which he assembles articles, objects, directions, materials, and products revealing any area of personal interest, such as a trip, hobby or craft.

75. Draw a single line. Have each student add to it to produce a final shape. Write a descriptive sketch or poem about shapes in nature--or any other area.

    From: Igniting Creative Potential: Project Implode (Salt Lake City, Utah: Aaron Press, 1972).

76. Study a group of figures (alphabet, arabic numerals, punctuation, money symbols, arithmetic symbols) and group them according to characteristics they have in common. See how many groups you can discover.

77. "Two Indians, a big one and a little one, are walking through the woods. They resemble each other, and in truth, they are related. The little Indian is the son of the big Indian, but the big Indian is not the father of the little Indian. What is their relationship?"

    Answer: The big Indian is the mother.

    From: Gary A. Davis and Joseph H. Scott, Training Creative Thinking (New York: Holt, Rinehart and Winston, Inc., 1971), p. 123.

53. Have students design a new product, and make a commercial to promote sales of the product, using obvious television commercials, sales techniques, etc. Enact these to appeal to a particular group.

54. Write a myth suggesting how oil got under the oil wells, salt got in the ocean, why oranges are a brilliant orange, etc.

55. What number when multiplied by itself is less than when divided by itself?

    Answer: Any proper fraction. For example, $\frac{1/4}{1/4} = 1$; $1/4 \times 1/4 = 1/6$

    From: Abraham B. Hurwitz, et al., Number Games to Improve Your Child's Arithmetic (New York: Funk and Wagnalls, 1975), p. 197.

56. Students in groups will "act out" individual tasks (e.g., singing a song, drawing on a cloud, doing push-ups, flying like a bird, etc.). The class will make brief descriptive notes, numbering each student activity. For practice in using figurative language, they will compose sentences based on ideas suggested by the activities.

57. Listen to a recording and paint what you hear.

58. After studying a unit on the history of a given period, have students write a story set against the historical background.

59. Since De Vinci did sketches of the airplane, heart, helicopter, and submarine, what would he sketch in today's world?

60. Using fantasy as an escape device (e.g., "The Secret Life of Walter Mitty"), write a short story from first person point of view in which you experience an everyday situation, face conflict and then gradually move from reality to a realm of fantasy.

61. Bring a cartoon strip to class--one which you read often or follow in its sequence. List or reveal what points about a character you feel you can identify with.

62. Write a joke, cut out a picture and supply a caption, or draw a cartoon having a person saying something out of character. Example: Jackie K. Onassis with the caption, "I ain't got nothin' to wear."

63. Two people are involved in physical struggle. Through creative drama reveal who they are, source of their conflict, and rising tension.

64. List different types of music which impress you that you hear in everyday life. Try to verbalize what influence the different music has on you.

65. Interview a famous person--"You Were There."

66. Have students divide into two groups and brainstorm ideas as to whether or not violence is damaging to viewers (each side takes one view). Each person is allowed to make one statement going back and forth from side to side. Each student is allowed to make one point, either an answer to another or a new idea.

78. You are a parakeet or canary who has escaped from your cage and you are struggling to survive outdoors. Describe what you will do.

79. If you could be anywhere in the world, where is that place? Now plan a trip for the rest of the class to that place.

80. Present a puppet show representing a musical composition or picture.

81. If you met an animal that could talk, would you talk or listen? If you talk, what would you say? If you listen, what would you hear?

82. Students write and act out a dialogue between two parts of speech: noun-verb; adjective-noun; adverb-verb.

83. With pieces cut from magazines and construction paper, create a mosaic that shows a scientific concept.

84. "In the Mind's Eye"

    Using a protractor, create five different shapes. Use these shapes to create a picture to express an abstract noun, animal, etc. The picture may be filled with other drawn details. Write a theme or a short story or a poem about the final product.

85. Teacher should provide a variety of isolated sounds. Have students "coin" words which express the sounds.

86. Students draw (from memory) a road map of the path/route to follow from their houses to the school.

87. Have students create a newspaper from or for a particular culture.

88. Create a setting (or use a picture, slide, etc.) which gives the impression that someone has just left the scene with a task unfinished. Have the students imagine why he was involved in the activity, why he left it, where he went, what he will have to do to finish it. (Could be nucleus for short story.)

89. What subjects would Michaelangelo paint were he living today?

90. Using films of two short stories, show one to the climax, asking students to plot possible sequences of events to the conclusion. Show the second from climax to conclusion, asking them to structure sequences from introduction (activating circumstances) through rising action.

91. Plan a new government.

92. From Chuquet (1484)

    A man spends 1/3 of his money and loses 2/3 of the remainder. He then has 12 pieces. How much money had he at first?

    Answer: Let x = man's original amount of money. Thus
    $x - 1/3\ x - 2/3\ (2/3\ x) = 12$ and $x = 54$

93. Do a soap carving to foster the appreciation of the works of famous sculptures.

94. Arrange a group of cartoon pictures and then write a story about what is happening.

95. Pretend you are a fan. What makes you work?

96. Make a collage showing a specific emotion, such as fear, love, hate, etc.

97. List names for persons involved in carnivals or other employment that denote their occupation. Example: Hugh Mann Kanonbowl.

98. Two fathers and two sons divided three dollars among them. Each of them received exactly one dollar. How was this possible?

    Answer: There were only three people--a grandfather, father, and son.

    From: Abraham B. Hurwitz, et al., Number Games to Improve Your Child's Arithmetic (New York: Funk, Wagnall's Co., 1975), p. 214.

99. Panel of three students answer questions from classmates about a book only one of the panel members has read. Each member answers questions if asked to do so. (Similar to "To Tell the Truth.")

100. You are given 10 trees to plant. They must be planted in five rows with four in each row.

    Answer:

101. Have students design a cover for a classical play that would appeal to today's reading audiences.

102. Develop a subjective description (interpretive, artistic) of your reaction to a deeply moving personal experience. Concentrate on one primary emotion, such as hate, disgust, love, fear, etc.

103. Weary by their disputations and oppressed by the summer heat, three Greek philosophers lay down for a nap under a tree at the academy. As they slept, a practical joker smeared their faces with black paint. Presently they all awoke and began to laugh at one another. Suddenly one of them stopped laughing, for he realized that his own face was painted. What was his reasoning?

    Answer: A, B, C are three philosophers. A thought, "Since B is laughing, he thinks his face is clean. Since he believes that, he would be astonished at C's laughter, for C would have nothing to laugh at. Since B is not astonished, he must think, "C is laughing at me. Hence, my face is black."

    From: Maurice Kraitchik, Mathematical Recreations (New York: W. W. Norton and Co., 1942), p. 15.

104. Find pictures to illustrate abstract terms or emotions.

105. How can one make four nines equal one hundred?

Answer: 99 9/9

From: Gary A. Davis and Joseph H. Scott, Training Creative Thinking (New York: Holt, Rinehart and Winston, Inc., 1971), p. 120.

106. Select a narrative poem and develop from it a short story, film script or creative drama experience. Then stage a dialogue between you and the poet, who will criticize your treatment of his work.

107. Plan a trip for an atom from one molecule to another.

108. Given a specific amount of money, play the stock market.

109. Plan a library. What books would you include and why?

110. Name as many things you can think of that fly.
Name as many things you can think of that have wheels.
Name as many words you can think of that rhyme with can.

111. You are a stamp living happily in the post office until one day someone buys you to put on a letter. Who buys you? What is he/she like? Where are you going? What is the content of the letter?

112. What animal would you consider yourself most like and why?

113. Plan a new means of transportation. Make a model.

114. Have student select a good quality he has noticed in another. Have him reveal a situation in which he has observed the person display the quality.

115. Art: View a famous painting. Answer the following questions:
(1) List as many things as possible that might have caused or led up to the action shown in the picture.
(2) What might have been happening in the world around the artist at this particular time? What kind of life might this artist have led?
(3) What might happen in the picture--immediate and long range? What will follow the actions in the picture?
(4) What feelings does this picture provoke?
(5) What catches your eye first?
(6) What does the background say?
(7) What does the artist tell of himself and his faith through his work?
(8) What message comes through?

116. Write words and make them look like their meanings.
Examples: Telephone, Repeatttt
(other words: knot, depress, fire, etc.)

117. Role play that you are a toy and show how you feel being on display daily--and how you feel when the store is closed.

118. Argue the opposite point of view on a subject you feel strongly about.

119. Draw a cartoon illustrating an amusing incident in which you have been involved.

120. Think on your feet--impromptu speaking.
   a. How do you make your favorite ice cream creation?
   b. You are a fish, what kind are you? Where are you swimming? What do you see?

121. In a mythical community, politicians always lie, and non-politicians always tell the truth. A stranger meets three natives and asks the first if he is a politician. The first native answers the question. The second native then reports that the first denied being a politician. The third asserts that the first is a politician. How many were politicians? (one)

   From: Irving M. Copi, Introduction to Logic (New York: The MacMillan Co., 1961), p. 16.

122. Set up U. N. and role-play the different countries--in costume if possible.

123. Have students do writing on the possibilities of what happened before a particularly significant event.

124. Design an aquarium, ant farm, etc. Explain the cycle and materials involved.

125. Write a dialogue presenting conflict between two personified forces such as hate and love, truth and fallacy, despair and hope, etc. Resolve the conflict.

126. How does RED taste? How does night sound? How does a raindrop taste? How does your father look when he sleeps? What color is sunshine in the morning, at noon, in the afternoon, at sunset?

127. Art
Pretend you are an artist but your family is too poor to buy paper. Name as many printing surfaces as you can, where to find them, how to make them.

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The teachers who participated in the Teacher Training Institute wished to share a list of resources which they found helpful. This list focuses on creativity, the theme for this entire publication. Each item contributed to a broadened knowledge of some aspect of creativity for at least one participant.

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With reference to specific school programs already in progress, the study reviews alternate plans for increasing the use of independent study in elementary and secondary schools. Emphasis is on ways of developing favorable faculty attitudes and plans by which teachers can inaugurate independent study and activities.

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With Handbook II these two volumes are designed to bring order to basic conceptions and to provide a terminology used as standard in research and theory development.

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Designed primarily for a college text, this book offers comprehensive information about creativity, the process and ways to train creative thinking. Teachers will find the book practical with enough theory for rationale for teaching creative skills.

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This collection of practical suggestions will be useful in the classroom. The ideas are designed to combat the student question, "Are we going to do anything important today, Mr. Doe?" The book will be most helpful to secondary English teachers.

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Much material in this book was non-existent five years ago. Dr. Gallagher discusses areas of important change: development of curricula for talented students; increased interest in encouraging independent inquiry; clarifying the definitions of "giftedness" in both achievers and underachievers.

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Gowan, John, G. D. Demos and E. P. Torrance. Creativity: Its Educational Implications. Somerset, New Jersey: John Wiley and Sons, 1967.
Thirty-six readings on theory, research and educational applications of what is known about creativity. Invaluable suggestions for developing creativity.

---------- and E. P. Torrance. Educating the Ablest. Itasca, Illinois: F. E. Peacock Publishers, Inc., 1971.
A book of readings by major authors about the education of gifted children.

----------. The Development of the Creative Individual. San Diego, California: Robert Knapp Publisher, 1972.
Dr. Gowan in his preface states that "This is a book of glimpses; glimpses of a better future." The book is a result of Dr. Gowan's interest in and study about what makes a person creative. He discusses the development of creativity within a person. The book would be helpful to teachers for a better understanding of their own creativity as well as of their students' creativity.

Grobe, Edwin P. 300 Tips for Teaching Literature, 300 Creative Writing Activities for Composition Classes. Portland: J. Weston Walch, 1974.
Explanations of numerous activities which help the teacher actively involve and motivate the students to enjoy learning. (paperback--inexpensive)

Guilford, J. P. Intelligence, Creativity, and Their Educational Implications. San Diego, California: Robert Knapp Publisher, 1968.
Dr. Guilford combines the structure-of-the-intellect with creative potential and includes the importance to education of these theories. The book will help teachers understand some of the rationale for their teaching strategies.

Janson, H. W. History of Art. Englewood Cliffs, New Jersey: Prentice-Hall Inc., 1963.
This book contains an excellent attempt to answer the question, what is art? It also gives a fine description of the creative process.

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A writer himself, Houston presents simply and concisely his ideas on teaching creative writing, primarily emphasizing and illustrating prose forms. He sets forth the aims of the creative process: (1) to help students discover the value of writing in terms of their own experiences; (2) to lead students toward further understanding of "what good fiction and poetry are about." He insists that the teaching approach be designed to "maintain balance between impulse and control." (Suggested approaches for student writing are quite good.)

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Kenneth Koch suggests exciting ways to teach great poetry to students. Poem selections range from William Blake to Marianne Moore.

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Newton, David E. 101 Ideas on Inquiry. Portland, Maine: J. Weston Walch, Publisher, 1972.
101 Ideas on all subjects are drawn from journals, books and magazines to use for inquiry teaching on any level. This book is an excellent resource for teachers.

Parnes, Sidney and Harold Harding. A Source Book for Creative Thinking. New York: Charles Scribner's Sons, 1962.
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A discussion of creative behavior, centering around the encouragement of it and development of means to deal with problems related to rewarding it. Describes measurements and evaluations of studies on creative behavior and potential practical application.

----------. Education and the Creative Potential. Minneapolis: University of Minnesota Press, 1963.
This book will prove to be a valuable resource and reference for teachers who want a better understanding of the creative process.

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The Gifted Child Quarterly. John Gowan, editor. Northridge, California 91324. American Association of Gifted Children, 15 Gramerory Park, New York, New York.

Film

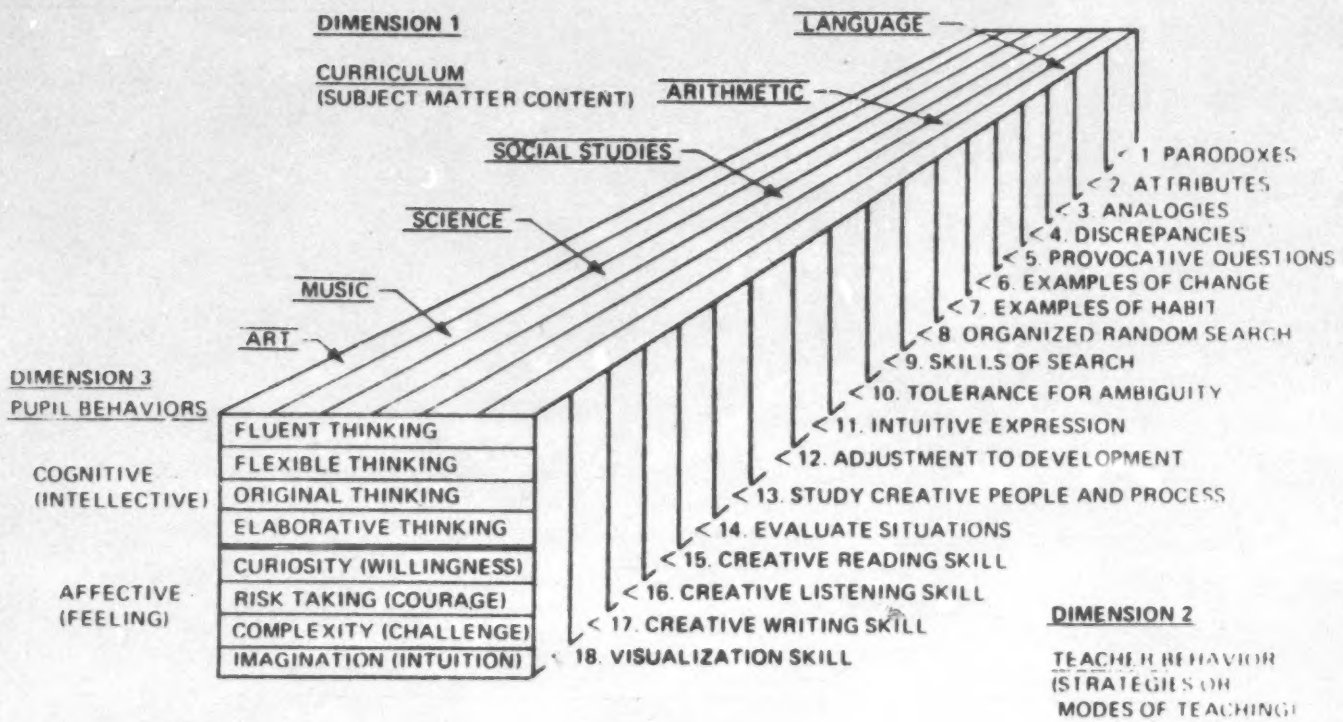
Koestler on Creativity. Time Life Films, 43 West Sixteenth Street, New York, New York 10011.

This film, which is 40 minutes in length, is based on Koestler's book, The Act of Creation. It conveys the major ideas of the book in a very interesting visual presentation.

APPENDIX A

A Model for Implementing Cognitive-Affective Behaviors in the Classroom

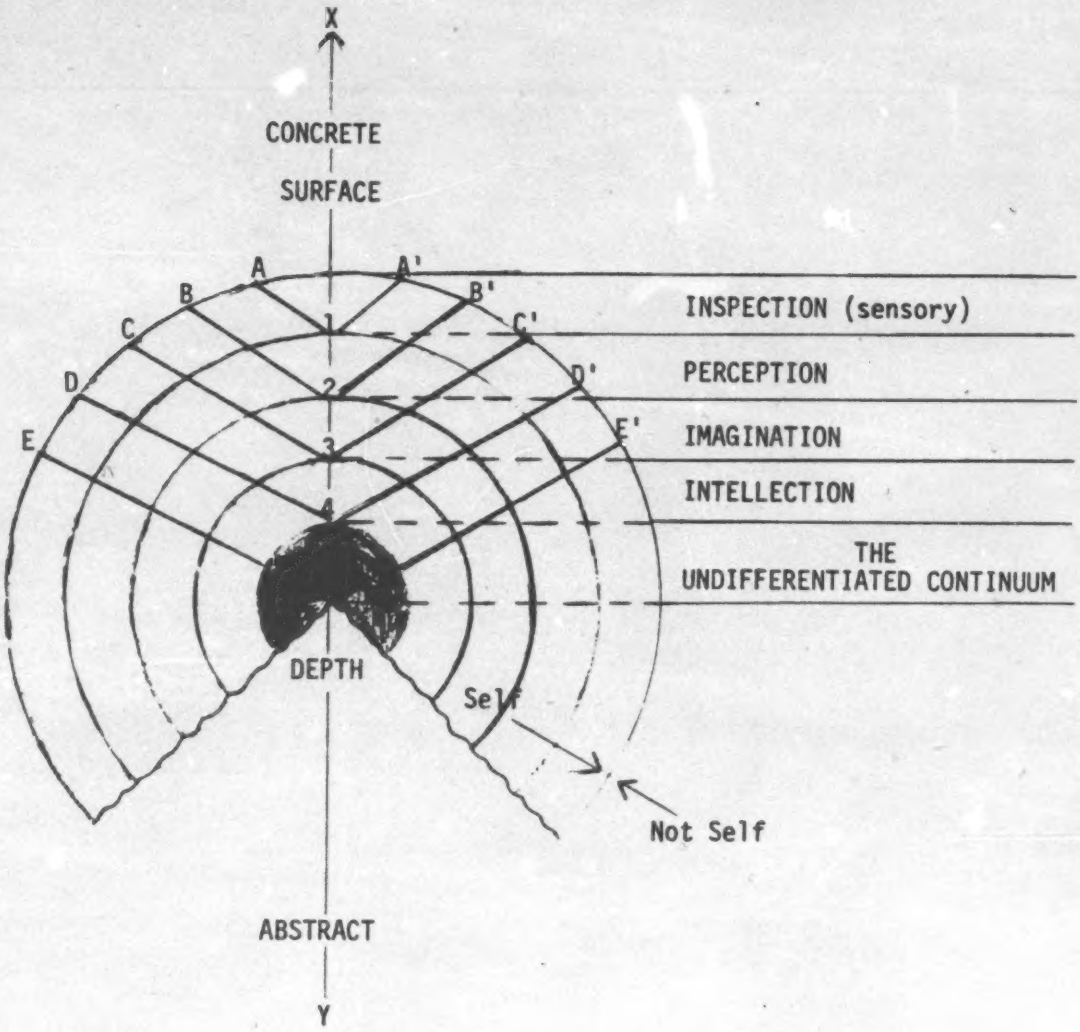
D1⇄D2→D3



*Taken from Total Creativity Program, Frank E. Williams, Educational Technology Publications, Inc., 140 Sylvan Avenue, Englewood Cliffs, New Jersey.

Appendix B

MODEL OF THE MIND*

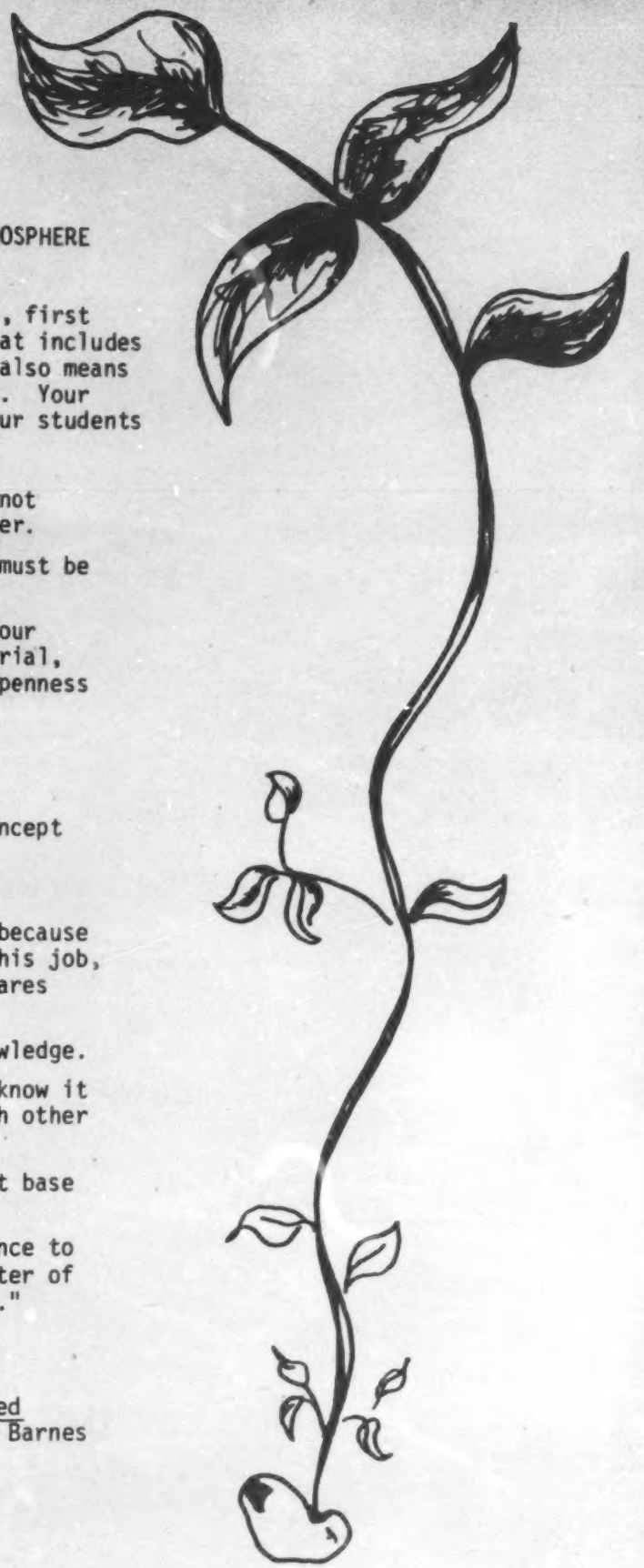


*H. Michael Lewis, Open Windows onto the Future (The Governor's School of North Carolina).

WAYS TO FOSTER CREATIVE ATMOSPHERE

"If you want to be a good teacher, first be informed, and then be yourself. That includes breaking out of the old molds, but it also means not confining yourself in any new ones. Your freedom to teach is as important to your students as their freedom to learn . . ."[1]

1. To be a creative person does not insure being a creative teacher.
2. To be a creative teacher you must be a person.
3. Confidence and knowledge in your subject matter yourself, material, presentation, in students. Openness to new ideas, exploring them.
4. Must have time.
5. Humility.
6. All creative acts have the concept of failure.
7. Flexibility.
8. Show student he is not there because it's another day and part of his job, that the student or teacher cares about learning.
9. Relationships of areas of knowledge.
10. Teacher and student does not know it all. Both can learn from each other and from others.
11. Don't create in a vacuum--must base new ideas on knowledge.
12. Toynbee - "To give a fair chance to potential creativity is a matter of life or death for any society."



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[1]Owenita Sanderlin, Teaching Gifted Children (Cranbury, New Jersey: A. S. Barnes and Company, 1973).